

ABSTRACT OF THE DISCLOSURE

Processes for fabricating integrated optics devices are provided. According to one process, a photosensitive sol-gel glass material including a volatile photosensitizer is prepared. A film of the sol-gel is then produced on a substrate. The film is then imprinted with an image of an optical device by exposing the photosensitive sol-gel film to light energy patterned in the negative or positive image of the desired device, thereby photolyzing photosensitizer within the exposed portion in proportion to the amount of light energy delivered. The image of the written optical device is then fixed in the exposed film, thereby forming a planar device layer having an embedded optical device. The photoinduced refractive index change between the optical device and the surrounding region is preferably greater than or equal to 0.001. A variety of passive and active integrated optic devices may be fabricated using the disclosed processes and are also described.

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